

Application No. 10/747,713  
Reply to Office Action of February 18, 2005

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### REMARKS

Applicant respectfully requests entry of this Amendment and reconsideration of the pending claims. Independent claim 1 is amended to incorporate the subject matter of dependent claim 5, which is cancelled. Claim 2 is amended to correct typographical errors, and Claim 6 is amended to correct dependency issues. Accordingly, claims 1-4 and 6-34 are pending in the application.

Claims 1 - 34 were rejected under 35 U.S.C. 103(a) as being unpatentable in view of Curatolo, U.S. 5,804,301. Applicant respectfully disagrees. Amended claim 1 defines "a hexafunctional acrylate derivative", claims 19 and 34 each define "at least one hexafunctional urethane acrylate". Curatolo does not teach, suggest, or disclose all of the limitations of independent claims 1, 19 or 34. Instead, Curatolo discloses in col. 4, lines 36-67:

"Specific examples of suitable polyfunctional acrylate monomers containing at least one internal flexible unit include the following compounds. In the following examples as well as elsewhere in the specification and claims, unless specifically indicated otherwise, the term "acrylate" is intended to include substituted as well as unsubstituted acrylates. In particular, the term "acrylate" is intended to include alkyl acrylates containing from 1 up to 8 carbon atoms and more particularly the corresponding methacrylate derivatives.

diethylene glycol diacrylate  
triethylene glycol diacrylate  
tetraethylene glycol diacrylate  
polyethylene glycol diacrylate  
dipropylene glycol diacrylate  
tripropylene glycol diacrylate  
tetrapropylene glycol diacrylate  
polypropylene glycol diacrylate  
glyceryl ethoxylate diacrylate  
glyceryl propoxylate diacrylate  
glyceryl ethoxylate triacrylate  
glyceryl propoxylate triacrylate  
trimethylolpropane ethoxylate triacrylate  
trimethylolpropane propoxylate triacrylate

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neopentylglycol ethoxylate diacrylate  
neopentylglycol propoxylate diacrylate  
monomethoxy trimethylolpropane ethoxylate diacrylate  
pentaerythritol ethoxylate tetraacrylate  
pentaerythritol propoxylate tetraacrylate  
dipentaerythritol ethoxylate pentaacrylate  
dipentaerythritol propoxylate pentaacrylate  
di-trimethylolpropane ethoxylate tetraacrylate  
Bisphenol A ethoxylate diacrylate  
Bisphenol A propoxylate diacrylate

Examples of polyfunctional acrylate monomers containing at least one internal flexible unit which is a hydrocarbylene group include 1,8-octanediol diacrylate, 1,10-decanediol diacrylate, polybutadiene diacrylate, etc.”

Curatolo discloses even more polyfunctional acrylates at column 6, line 67 to column 7, line 21:

“Specific examples of mono- and polyfunctional acrylate monomers which can be utilized as a reactive material in the coating compositions of the present invention include one or more of the following: ethylhexyl acrylate; 2-ethoxyethyl acrylate; cyclohexyl acrylate; lauryl acrylate; stearyl acrylate; alkoxyated phenol acrylates; alkoxyated nonylphenol acrylates; nonylphenol acrylate; isobornyl acrylate; acrylated epoxy soya oil; acrylated epoxy linseed oil; caprolactone acrylate; 2-phenoxyethyl acrylate; benzyl acrylate; monomethoxy tripropylene glycol monoacrylate; monomethoxy neopentyl glycol propoxylate monoacrylate; 1,3-butanediol diacrylate; 1,4butanediol diacrylate; 1,6-hexanedioldiacrylate; trimethylolpropane triacrylate; glyceryl triacrylate; pentaerythritol triacrylate; pentaerythritoltetraacrylate; dipentaerythritol pentaacrylate; di-trimethylolpropane tetraacrylate; tris(2-hydroxyethyl)isocyanurate triacrylate, tetrahydrofurfuryl acrylate; isooctyl acrylate; isodecyl acrylate; 2-(2-ethoxyethoxy) ethyl acrylate; ethylene glycol diacrylate; propylene glycol diacrylate; neopentyl glycol diacrylate; cyclopentenyl oxyethyl acrylate; 9-anthracenyl methyl acrylate; 1-pyrenylmethyl acrylate; Fluorescein diacrylate; and 3,8-diacryloyl ethidium bromide.

As shown above, Curatolo discloses many polyfunctional acrylates, but none with a functionality greater than pentafunctional (c.g., dipentaerythritol ethoxylate

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pentaacrylate and dipentaerythritol propoxylate pentaacrylate). Curatolo also lists commercially available materials, but none more than tri-functional. In Curatolo's examples, acrylates were used, but none more than tri-functional. One would not reasonably conclude upon reading Curatolo that functionality higher than pentafunctional is taught or suggested, or even would be suitable, for the application presented in the cited reference.

Additionally, independent claims 1, 19 and 34 refer to nanoscale filler. While Curatolo may disclose fillers as noted in the Office Action, Curatolo makes no disclosure, teaching or suggestion with regard to filler as defined in the claims. See, for example, at column 9, line 31.

"Examples of pigments and filler materials include, but are not limited to, titanium dioxide, hydrophilic silica, hydrophobic amorphous fumed silica, amorphous precipitated silica, carbon black, and polymer powders. Examples of flow and leveling additives, wetting agents, and antifoaming agents include silicones, modified silicones, silicone acrylates, hydrocarbons, fluorine-containing compounds, and non-silicone polymers and copolymers such as copolyacrylates.

Applicant submits that it is not enough merely to disclose a broad category of material in a reference, but the reference must contain some motivation or suggestion to make the selection or combination as defined in the claims. That is, the reference must suggest the desirability to make the claimed invention. In this instance, that suggestion or motivation is missing entirely.

Further, the suggestion in the Office Action that the use of nanoscale filler was within the capability of one of ordinary skill is not sufficient, by itself, to establish *prima facie* obviousness. Finally, there is no showing that at the time of the reference one of ordinary skill would have a reasonable expectation of success in using a nanoscale filler. To assume success erroneously presupposes that filler scale may be irrelevant. For any or all of these reasons, the requirements for *prima facie* obviousness have not been met at least for independent claims 1, 19 and 34. Without *prima facie* obviousness, the rejection

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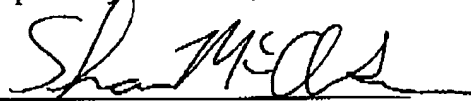
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should be withdrawn.

Independent claims 1, 19 and 34 are allowable over the cited reference. The remaining claims depend from allowable independent claims, and also are allowable. Accordingly, Applicant submits that claims 1-4 and 6-34 are allowable and respectfully request a notice of allowance.

Should the Examiner believe that anything further is needed to place the application in condition for allowance, the Examiner is invited to contact the Applicant's undersigned representative at the telephone number below. Any additional fees for the accompanying response are hereby petitioned for, and the Director is authorized to charge such fees as may be required to Deposit Account 07-0868.

Respectfully submitted,



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